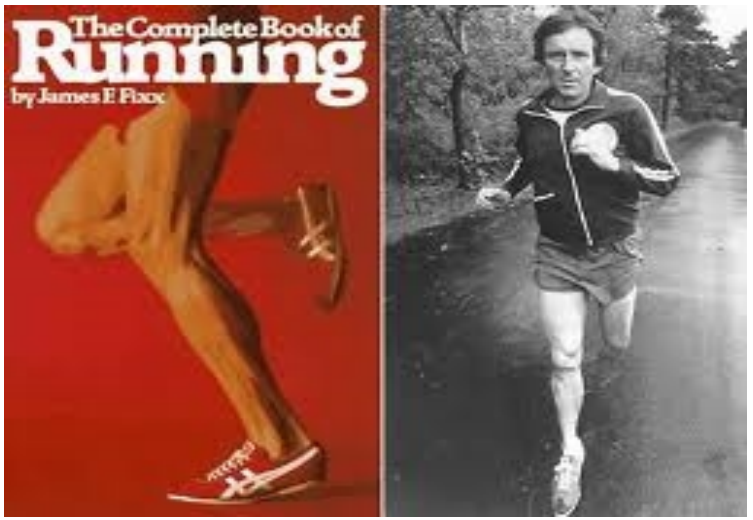
Recomandam ceea ce trebuie, atunci cand trebuie?

Sir Winston Churchill
A trait **91** **de ani**

“SPECIFICITATE SCAZUTA?”

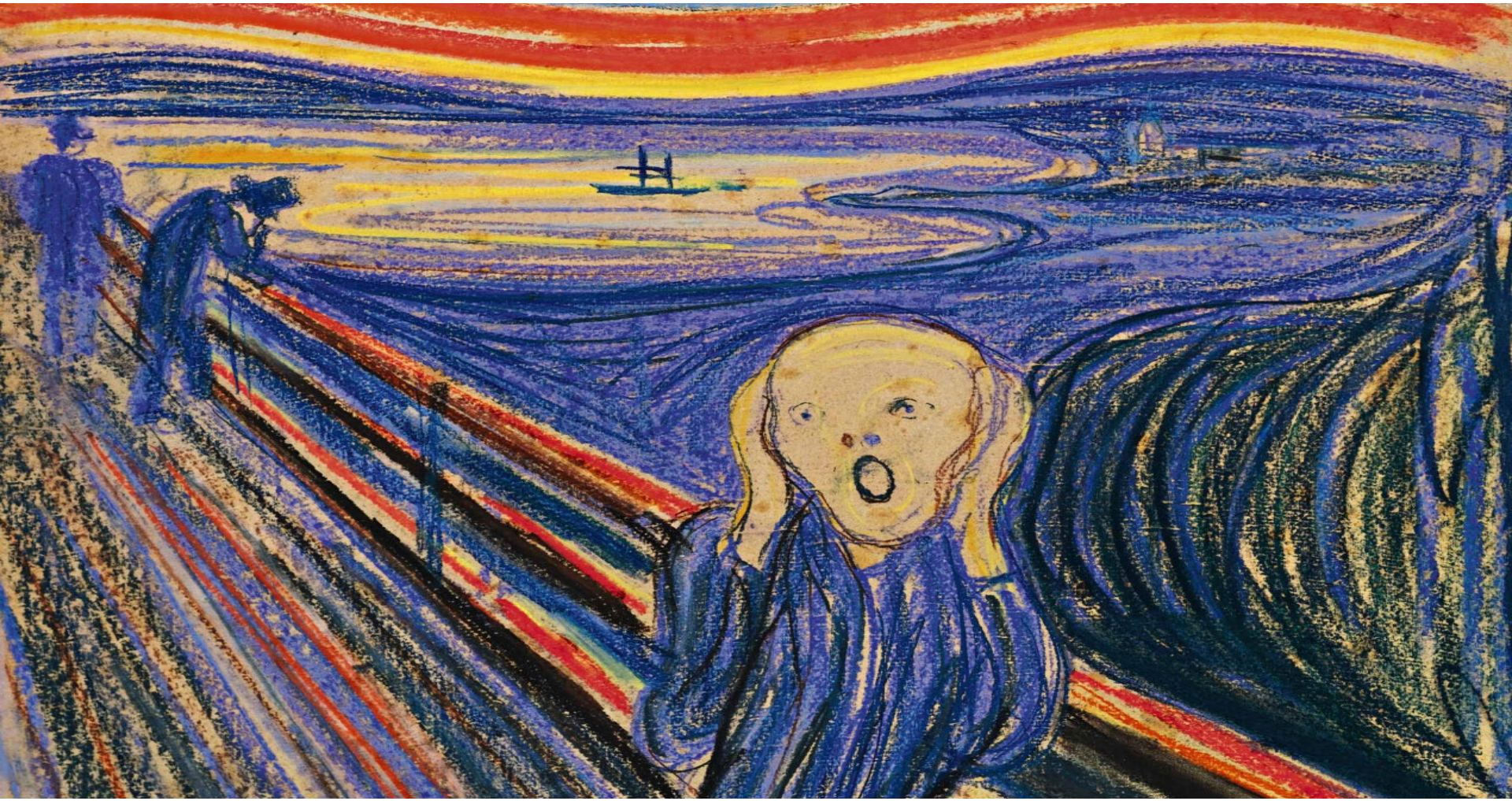


Jim Fixx
A trait **52** **de ani**

“SENSIBILITATE SCAZUTA?”


Evaluarea de risc!

Scoruri de risc si formule de calcul
Framingham, QRISK2, ASCVD, HeartSCORE....???



Continuum Cardiovascular

BCV

Diabet zaharat

Boala cronica de rinichi

Factori de risc

Subiecti sanatosi

Populatia generala ***Risc crescut*** ***Preventie secundara***

Dihotomia Clinica

Preventie secundara vs Risc CV !?

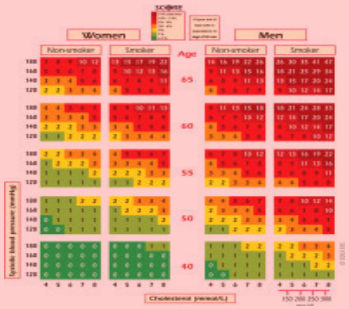
BCV

Diabet zaharat

Boala cronica de rinichi

Subiecti sanatosi

Factori de risc

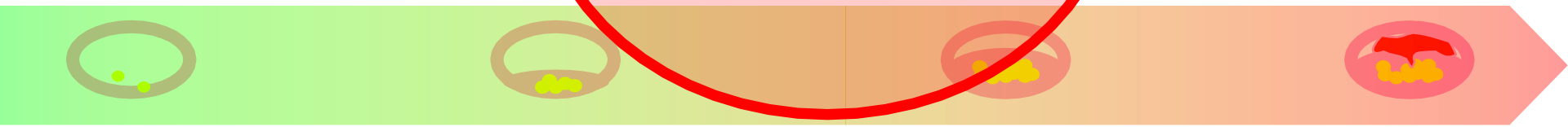


<1%

≥5%

Preventia populationala

Preventia clinica



Clinical judgement

- Diagnosis
- Risk stratification
- Treatment – lifestyle & drugs
- Reach the target!

DIAGNOSIS

- Signs & symptoms
- Clinical examination
- ECG
- Echocardiography
- **Exercise test**

Heeeeeelp!

Missis PZ, comes for years in your office for chest pains.
BP grade 1/Overweight/ Smoker/ Total cholesterol 240mg/dl.

Her chest pains where NEVER considered angina!
Despite of that, her family convinced an angiographist to investigate invasively-

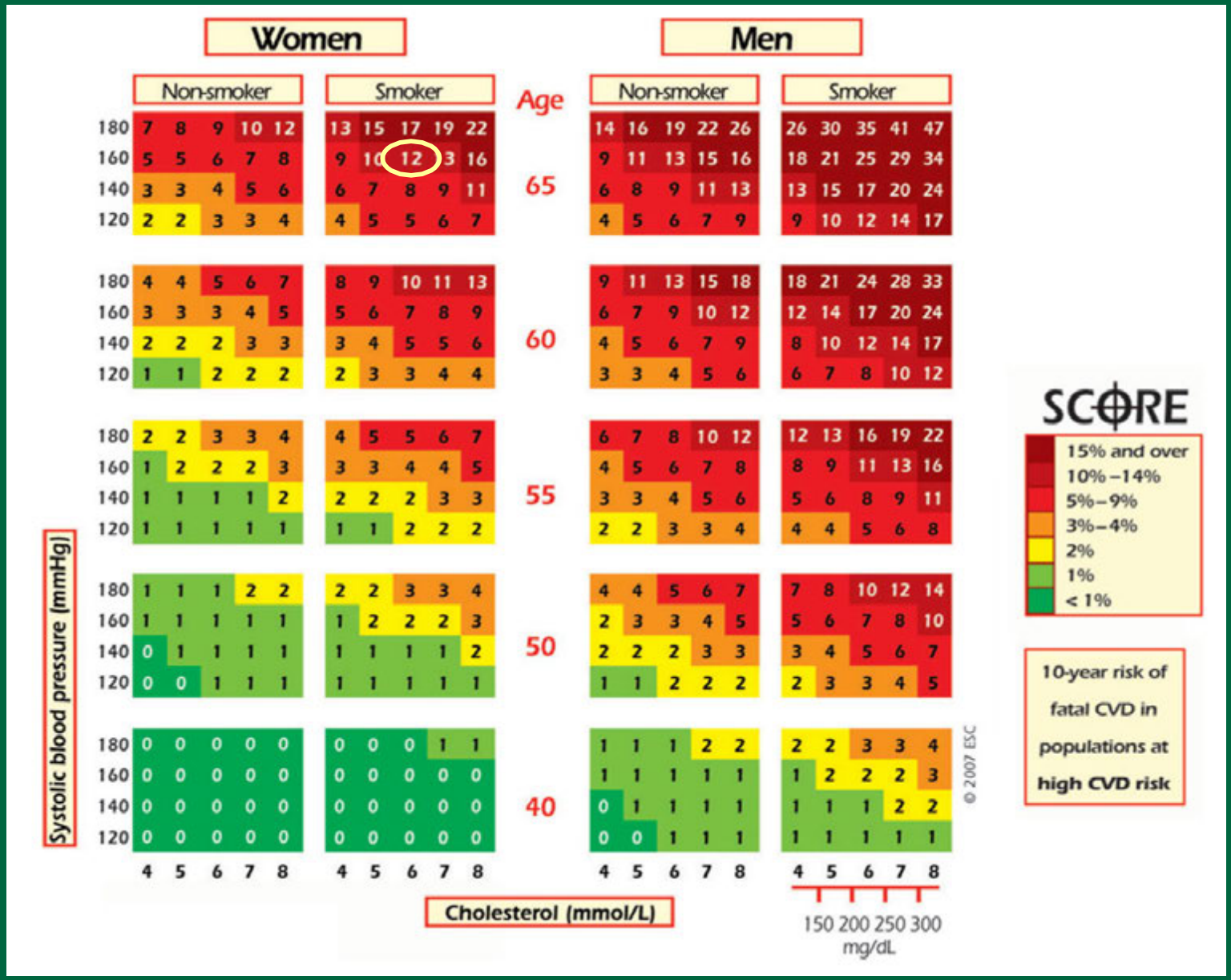
Dg.- Coronary artery disease (severe, trivascular).

Planned now for CABG –
She, but especially family, is shocked! And in her eyes, is nothing that ACUSATION!

How you explain your medical attitude until now?
What you did not?
What you have to do now?

Paradigms

- intuition vs rationale
- short term vs long term
- mortalitaty vs symptoms
- decision to treat vs fear to make mistakes
- conservative vs interventional


Women
Men
Non-smoker
Smoker
Non-smoker
Smoker
Age
65
60
55
50
40
Systolic blood pressure (mmHg)
180 7 8 9 10 12 | 13 15 17 19 22 | 14 16 19 22 26 | 26 30 35 41 47
160 5 5 6 7 8 | 9 10 12 13 16 | 9 11 13 15 16 | 18 21 25 29 34
140 3 3 4 5 6 | 6 7 8 9 11 | 6 8 9 11 13 | 13 15 17 20 24
120 2 2 3 3 4 | 4 5 5 6 7 | 4 5 6 7 9 | 9 10 12 14 17
180 4 4 5 6 7 | 8 9 10 11 13 | 9 11 13 15 18 | 18 21 24 28 33
160 3 3 3 4 5 | 5 6 7 8 9 | 6 7 9 10 12 | 12 14 17 20 24
140 2 2 2 3 3 | 3 4 5 5 6 | 4 5 6 7 9 | 8 10 12 14 17
120 1 1 2 2 2 | 2 3 3 4 4 | 3 3 4 5 6 | 6 7 8 10 12
180 2 2 3 3 4 | 4 5 5 6 7 | 6 7 8 10 12 | 12 13 16 19 22
160 1 2 2 2 3 | 3 3 4 4 5 | 4 5 6 7 8 | 8 9 11 13 16
140 1 1 1 1 2 | 2 2 2 3 3 | 3 3 4 5 6 | 5 6 8 9 11
120 1 1 1 1 1 | 1 1 2 2 2 | 2 2 3 3 4 | 4 4 5 6 8
180 1 1 1 2 2 | 2 2 3 3 4 | 4 4 5 6 7 | 7 8 10 12 14
160 1 1 1 1 1 | 1 2 2 2 3 | 2 3 3 4 5 | 5 6 7 8 10
140 0 1 1 1 1 | 1 1 1 1 2 | 2 2 2 3 3 | 3 4 5 6 7
120 0 0 1 1 1 | 1 1 1 1 1 | 1 1 2 2 2 | 2 3 3 4 5
180 0 0 0 0 0 | 0 0 0 1 1 | 1 1 1 2 2 | 2 2 3 3 4
160 0 0 0 0 0 | 0 0 0 0 0 | 1 1 1 1 1 | 1 2 2 2 3
140 0 0 0 0 0 | 0 0 0 0 0 | 0 1 1 1 1 | 1 1 1 2 2
120 0 0 0 0 0 | 0 0 0 0 0 | 0 0 1 1 1 | 1 1 1 1 1
4 5 6 7 8 | 4 5 6 7 8 | 4 5 6 7 8 | 4 5 6 7 8
Cholesterol (mmol/L)
150 200 250 300
mg/dL
SCORE
15% and over
10%–14%
5%–9%
3%–4%
2%
1%
< 1%
10-year risk of fatal CVD in populations at high CVD risk
© 2007 ESC

Pretest likelihood of CAD in symptomatic patients

Age (years)	Typical angina		Atypical angina		Non-anginal chest pain	
	Male	Female	Male	Female	Male	Female
30–39	69.7 ± 3.2	25.8 ± 6.6	21.8 ± 2.4	4.2 ± 1.3	5.2 ± 0.8	0.8 ± 0.3
40–49	87.3 ± 1.0	55.2 ± 6.5	46.1 ± 1.8	13.3 ± 2.9	14.1 ± 1.3	2.8 ± 0.7
50–59	92.0 ± 0.6	79.4 ± 2.4	58.9 ± 1.5	32.4 ± 3.0	21.5 ± 1.7	8.4 ± 1.2
60–69	94.3 ± 0.4	90.1 ± 1.0	67.1 ± 1.3	54.4 ± 2.4	28.1 ± 1.9	18.6 ± 1.9

Guidelines on the management of stable angina pectoris. European Society of Cardiology, 2006

CAD post-test likelihood

Age (years)	ST-depression (mV)	Typical angina		Atypical angina		Non-anginal chest pain		Asymptomatic	
		Male	Female	Male	Female	Male	Female	Male	Female
30–39	0.00–0.04	25	7	6	1	1	<1	<1	<1
	0.05–0.09	68	24	21	4	5	1	2	4
	0.00–0.14	83	42	38	9	10	2	4	<1
	0.00–0.19	91	59	55	15	19	3	7	1
	0.00–0.24	96	79	76	33	39	8	18	3
	>0.25	99	93	92	63	68	24	43	11
40–49	0.00–0.04	61	22	16	3	4	1	1	<1
	0.00–0.09	86	53	44	12	13	3	5	1
	0.00–0.14	94	72	64	25	26	6	11	2
	0.00–0.19	97	84	78	39	41	11	20	4
	0.00–0.24	99	93	91	63	65	24	39	10
	>0.25	>99	98	97	86	87	53	69	28
50–59	0.00–0.04	73	47	25	10	6	2	2	1
	0.00–0.09	91	78	57	31	20	8	9	3
	0.00–0.14	96	89	75	50	37	16	19	7
	0.00–0.19	98	94	86	67	53	28	31	12
	0.00–0.24	99	98	94	84	75	50	54	27
	>0.25	>99	99	98	95	91	78	81	56
60–69	0.00–0.04	79	69	32	21	8	5	3	2
	0.00–0.09	94	90	65	52	26	17	11	7
	0.00–0.14	97	95	81	72	45	33	23	15
	0.00–0.19	99	98	89	83	62	49	37	25
	0.00–0.24	99	99	96	93	81	72	61	47
	>0.25	>99	99	99	98	94	90	85	76

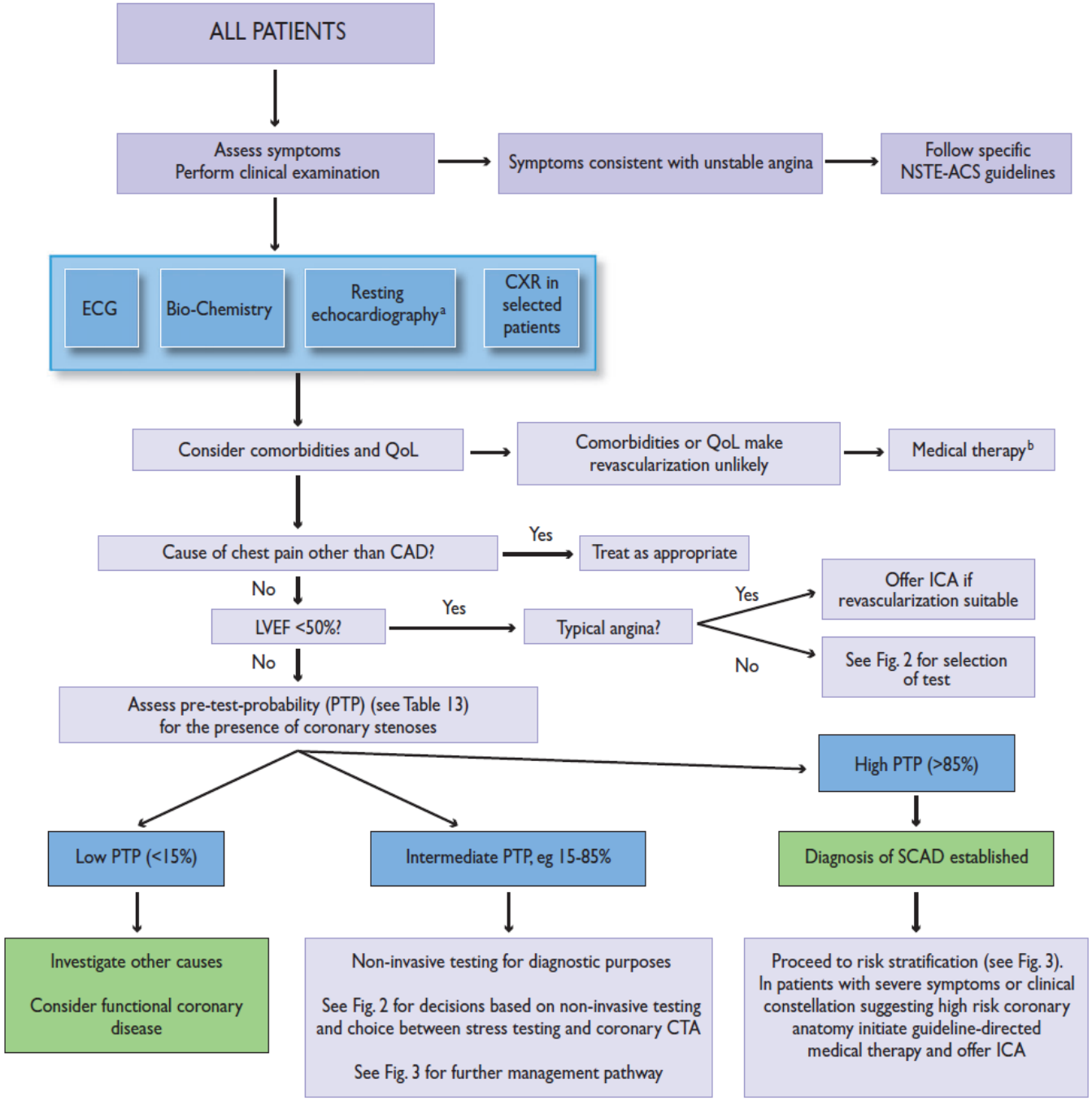
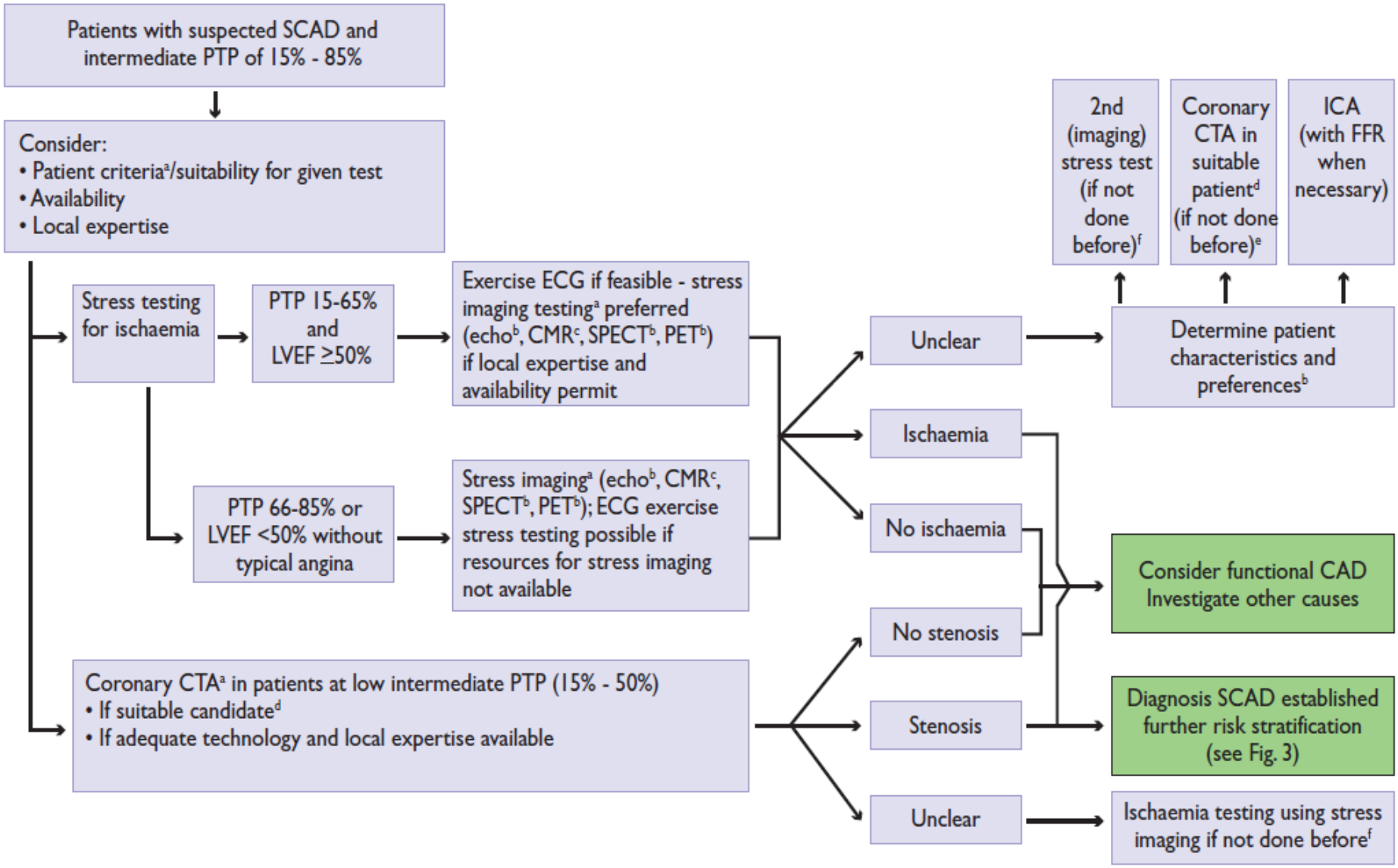


Figure 1 Initial diagnostic management of patients with suspected SCAD. CAD = coronary artery disease; CTA = computed tomography angi-



gure 2 Non-invasive testing in patients with suspected SCAD and an intermediate pre-test probability. CAD = coronary artery disease; CTA mputed tomography angiography; CMR = cardiac magnetic resonance; ECG = electrocardiogram; ICA = invasive coronary angiogra EF = left ventricular ejection fraction; PET = positron emission tomography; PTP = pre-test probability; SCAD = stable coronary ar

Heeeeeelp!

- Explain that the diagnose was by chance, not based on medical judgement – at 65 years old, the risk of death by CV disease is high!
- Strict control of risk factors : lifestyle (diet, smoking, effort), therapeutic targets (140/90 -175,130,50,150 - 25) – ACEI (5) , Aspirin (100), Statin (10-20)
- Discuss the risk of intervention/ reassure the patient (familly)/explain the necessity of prevention/rehabilitation
- After?
  Lifestyle (diet, smoking, effort), therapeutic targets (130/80 - 155,70,50,150 - 25) –ACEI (10) , Aspirin (100), Statin (10-20)

How change diabetes the general approach of this patient?

HeartScore=36 !

Cardiovascular assessment in diabetes - indications -

1. **Cardiac symptoms (any)**
2. **ECG signs of ischaemia/infarction**
3. **Atherosclerotic disease (carotid/peripheral)**
4. **Diabetes + ≥ 2 of the followings:**
    a. Dyslipidaemia
    b. Hypertension
    c. Smoking
    d. Familial history of CHD
    e. Microalbuminuria
    f. Sedentary life

Nathan et al. ADA recommendations. Diabetes Care 2007

Detailed history!

Cardiovascular assessment in diabetes - indications -

1. **Cardiac symptoms (any)**
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Nathan et al. ADA recommendations. Diabetes Care 2007

Follow-up!

Cardiovascular assessment in diabetes - indications -

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Nathan et al. ADA recommendations. Diabetes Care 2007

ABI !

Carotid plaque!

Cardiovascular assessment in diabetes - indications -

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Nathan et al. ADA recommendations. Diabetes Care 2007

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Nathan et al. ADA recommendations. Diabetes Care 2007

Global risk

Other Risk Factors, TOD or Disease	Blood Pressure (mmHg)				
	Normal SBP 120-129 or DBP 80-84	High Normal SBP 130-139 or DBP 85-89	Grade 1 HT SBP 140-159 or DBP 90-99	Grade 2 HT SBP 160-179 or DBP 100-109	Grade 3 HT SBP ≥ 180 or DBP ≥ 110
No other risk factors	Average risk	Average risk	Low added risk	Moderate added risk	High added risk
1-2 risk factors	Low added risk	Low added risk	Moderate added risk	Moderate added risk	Very high added risk
Diabetes, TOD, 3 or more risk factors: MS	Moderate added risk	High added risk	High added risk	High added risk	Very high added risk
Established CV or renal disease	Very high added risk	Very high added risk	Very high added risk	Very high added risk	Very high added risk

Prognostic factors

Risk factors	Subclinical organ damage
• Systolic and diastolic BP levels	• Electrocardiographic LVH* (Sokolow-Lyon >38 mm; Cornell >2440 mm*ms) or:
• Levels of pulse pressure (in the elderly)	• Echocardiographic LVH* (LVMI M ≥ 125 g/m^2, W ≥ 110 g/m^2)
• Age (M > 55 years; W > 65 years)	• Carotid wall thickening (IMT > 0.9 mm) or plaque
• Smoking	• Carotid-femoral pulse wave velocity >12 m/s
• Dyslipidaemia	• Ankle/brachial BP index <0.9
- TC > 5.0 mmol/l (190 mg/dl) or:	• Slight increase in plasma creatinine:
- LDL-C > 3.0 mmol/l (115 mg/dl) or:	M: 115–133 μmol/l (1.3–1.5 mg/dl);
- HDL-C: M < 1.0 mmol/l (40 mg/dl), W <1.2 mmol/l (46 mg/dl) or:	W: 107–124 μmol/l (1.2–1.4 mg/dl)
- TG > 1.7 mmol/l (150 mg/dl)	• Low estimated glomerular filtration rate† (<60 ml/min/1.73 m^2) or creatinine clearance◇ (<60 ml/min)
• Fasting plasma glucose 5.6–6.9 mmol/L (102–125 mg/dl)	• Microalbuminuria 30–300 mg/24 h or albumin-creatinine ratio: ≥22 (M); or ≥31 (W) mg/g creatinine
• Abnormal glucose tolerance test	
• Abdominal obesity (Waist circumference >102 cm (M), >88 cm (W))	
• Family history of premature CV disease (M at age <55 years; W at age <65 years)	

High risk strategy

- BP $\geq$ 180 mmHg systolic and/or $\geq$110 mmHg diastolic
- Systolic BP $>$ 160 mmHg with low diastolic BP ($<$70 mmHg)
- Diabetes mellitus
- Metabolic syndrome
- $\geq$3 cardiovascular risk factors
- One or more of the following subclinical organ damages:
  - Electrocardiographic (particularly with strain) or echocardiographic (particularly concentric) left ventricular hypertrophy
  - Ultrasound evidence of carotid artery wall thickening or plaque
  - Increased arterial stiffness
  - Moderate increase in serum creatinine
  - Reduced estimated glomerular filtration rate or creatinine clearance
  - Microalbuminuria or proteinuria
- Established cardiovascular or renal disease

Therapeutic algorithm

Blood pressure (mmHg)					
Other risk factors OD or disease	Normal SBP 120–129 or DBP 80–84	High normal SBP 130–139 or DBP 85–89	Grade 1 HT SBP 140–159 or DBP 90–99	Grade 2 HT SBP 160–179 or DBP 100–109	Grade 3 HT SBP ≥180 or DBP ≥110
No other risk factors	No BP intervention	No BP intervention	Lifestyle changes for several months then drug treatment if BP uncontrolled	Lifestyle changes for several weeks then drug treatment if BP uncontrolled	Lifestyle changes + Immediate drug treatment
1–2 risk factors	Lifestyle changes	Lifestyle changes	Lifestyle changes for several weeks then drug treatment if BP uncontrolled	Lifestyle changes for several weeks then drug treatment if BP uncontrolled	Lifestyle changes + Immediate drug treatment
≥3 risk factors, MS or OD	Lifestyle changes	Lifestyle changes and consider drug treatment	Lifestyle changes + Drug treatment	Lifestyle changes + Drug treatment	Lifestyle changes + Immediate drug treatment
Diabetes	Lifestyle changes	Lifestyle changes + Drug treatment			
Established CV or renal disease	Lifestyle changes + Immediate drug treatment	Lifestyle changes + Immediate drug treatment	Lifestyle changes + Immediate drug treatment	Lifestyle changes + Immediate drug treatment	Lifestyle changes + Immediate drug treatment

Treatment of Hypertension in the Prevention and Management of CHD
- AHA statement 2007 -

The amount of BP reduction*, rather than the choice of antihypertensive drug, is the major determinant of reduction of cardiovascular risk.*

- there is evidence to support the use of an ACE inhibitor (or ARB), CCB, or thiazide diuretic as first-line therapy
- most patients will require 2 or more drugs to reach goal,
- when the BP is >20/10 mm Hg above goal, 2 drugs should be used from the outset.
- In the asymptomatic post-MI patient, a β-blocker is a more appropriate choice for secondary prevention for at least 6 months after MI and is the drug of first choice if the patient has angina pectoris.

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    c. Smoking
    d. Familial history of CHD
    e. Microalbuminuria
    f. Sedentary life

Nathan et al. ADA recommendations. Diabetes Care 2007

Adiction !

Cardiovascular assessment in diabetes - indications -

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    c. Smoking
    d. Familial history of CHD
    e. Microalbuminuria
    f. Sedentary life

Nathan et al. ADA recommendations. Diabetes Care 2007

55/65!

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    c. Smoking
    d. Familial history of CHD
    e. Microalbuminuria
    f. Sedentary life

Nathan et al. ADA recommendations. Diabetes Care 2007

ESC/EASD Guidelines

Recommended treatment targets for patients with diabetes and CAD

Blood pressure (mmHg)	**130/80**
In case of renal impairment, proteinuria > 1g/24h	**125/75**

Cardiovascular assessment in diabetes - indications -

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2. **ECG signs of ischaemia/infarction**
3. **Atherosclerotic disease (carotid/peripheral)**
4. **Diabetes + ≥ 2 of the followings:**
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    c. Smoking
    d. Familial history of CHD
    e. Microalbuminuria
    f. Sedentary life

Nathan et al. ADA recommendations. Diabetes Care 2007

30 min/day !

Lifestyle

- Lifestyle measures should be instituted, whenever appropriate, in all patients, including those who require drug treatment. The purpose is to lower BP, to control other risk factors and to reduce the number of doses of antihypertensive drugs to be subsequently administered.
- Lifestyle measures are also advisable in subjects with high normal BP and additional risk factors to reduce the risk of developing hypertension.
- The lifestyle measures that are widely recognized to lower BP or cardiovascular risk, and that should be considered are:
  - smoking cessation
  - weight reduction (and weight stabilization)
  - reduction of excessive alcohol intake
  - physical exercise
  - reduction of salt intake
  - increase in fruit and vegetable intake and decrease in saturated and total fat intake
- Lifestyle recommendations should not be given as lip service but instituted with adequate behavioural and expert support, and reinforced periodically.
- Because long-term compliance with lifestyle measures is low and the BP response highly variable, patients under non-pharmacological treatment should be followed-up closely to start drug treatment when needed and in a timely fashion.

ESC-ESH Guidelines,Eur Heart J 2007

Now, …what???

Mister OK, 48 yo,comes for the first in your office for chest pains.
BP grade 1/Overweight/ Smoker/ Total cholesterol 240mg/dl.

One of his chest pains (2 weeks ago) IS (A)Typical angina!!
Whithout other delays – AngioCT – 75% RCA stenosis – Unstable Angina (de novo) convinced an angiography to investigate invasively-

Dg.- PTCA on RCA

But….still in…(chest) pain–

How you explain your medical attitude until now?
What you did not?
What you have to do now?

Pretest likelihood of CAD in symptomatic patients

Age (years)	Typical angina		Atypical angina		Non-anginal chest pain	
	Male	Female	Male	Female	Male	Female
30–39	69.7 ± 3.2	25.8 ± 6.6	21.8 ± 2.4	4.2 ± 1.3	5.2 ± 0.8	0.8 ± 0.3
40–49	87.3 ± 1.0	55.2 ± 6.5	46.1 ± 1.8	13.3 ± 2.9	14.1 ± 1.3	2.8 ± 0.7
50–59	92.0 ± 0.6	79.4 ± 2.4	58.9 ± 1.5	32.4 ± 3.0	21.5 ± 1.7	8.4 ± 1.2
60–69	94.3 ± 0.4	90.1 ± 1.0	67.1 ± 1.3	54.4 ± 2.4	28.1 ± 1.9	18.6 ± 1.9

Guidelines on the management of stable angina pectoris. European Society of Cardiology, 2006

CAD post-test likelihood

Age (years)	ST-depression (mV)	Typical angina		Atypical angina		Non-anginal chest pain		Asymptomatic	
		Male	Female	Male	Female	Male	Female	Male	Female
30–39	0.00–0.04	25	7	6	1	1	<1	<1	<1
	0.05–0.09	68	24	21	4	5	1	2	4
	0.00–0.14	83	42	38	9	10	2	4	<1
	0.00–0.19	91	59	55	15	19	3	7	1
	0.00–0.24	96	79	76	33	39	8	18	3
	>0.25	99	93	92	63	68	24	43	11
40–49	0.00–0.04	61	22	16	3	4	1	1	<1
	0.00–0.09	86	53	44	12	13	3	5	1
	0.00–0.14	94	72	64	25	26	6	11	2
	0.00–0.19	97	84	78	39	41	11	20	4
	0.00–0.24	99	93	91	63	65	24	39	10
	>0.25	>99	98	97	86	87	53	69	28
50–59	0.00–0.04	73	47	25	10	6	2	2	1
	0.00–0.09	91	78	57	31	20	8	9	3
	0.00–0.14	96	89	75	50	37	16	19	7
	0.00–0.19	98	94	86	67	53	28	31	12
	0.00–0.24	99	98	94	84	75	50	54	27
	>0.25	>99	99	98	95	91	78	81	56
60–69	0.00–0.04	79	69	32	21	8	5	3	2
	0.00–0.09	94	90	65	52	26	17	11	7
	0.00–0.14	97	95	81	72	45	33	23	15
	0.00–0.19	99	98	89	83	62	49	37	25
	0.00–0.24	99	99	96	93	81	72	61	47
	>0.25	>99	99	99	98	94	90	85	76

Tips of succes

- Clear history
- Comprehensive clinical approach
- Selective laboratory tests
- ECG-Echo-ExT (prediction)
- Global risk approach
- Short term/long term strategy
- Professional follow-up

How many deaths?

- Yesterday, a discussion in my clinic:
- Two patients – one with LDL 100 mg/dl, another with LDL de 200 mg/dl
- Laura said that from the total number of deaths/year, those with LDL 200 represents a majority in comparison with LDL 100 – Cristi smiled and said ”no, no, no, no, NO”!

How many deaths?

Prevention paradox

Those with LDL 200 have a high risk and need tratament (individual risk)

Those with LDL 100 ‘’contribute” MORE in term os mortality, because they are many (populational risk)

Strategies (high risk & community) are COMPLEMENTARY, not competitive!